

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-16. (Cancelled).

Claim 17. (Previously Presented) A lightning protection apparatus for a radome attached to an airframe comprising:

a source of electrically conducting fluid;

a delivery means for delivering the conducting fluid to a surface of a radome on which the protection apparatus is installed, prior to the lightning strike;

a control means for controlling the delivery means, said control means having

at least one electrostatic field sensor for detecting a change in surrounding atmospheric conditions indicative of a high probability of a lightning strike; and

means for initiating delivery of the conducting fluid on detection of such a change in atmospheric conditions, comprising a threshold detector for detecting when an electrostatic field amplitude detected by the at least one electrostatic field sensor exceeds a predetermined threshold level, and a switch for activating the delivery means when the predetermined threshold level is exceeded; and

means for directing the conducting fluid across the radome surface on which the protection apparatus is installed, towards the airframe, thereby providing a channel having a current conducting capacity sufficient for conducting any current induced by a lightning strike to the airframe for dissipation without damage to the radome.

Claim 18. (Previously Presented) A lightning protection apparatus for a radome as claimed in claim 17, wherein:

a plurality of polarity sensitive electrostatic field sensors are provided in a circumferential spatial arrangement about the longitudinal axis of the radome; and

the means for initiating delivery comprises a logic circuit configured to recognize a condition where at least one electrostatic sensor detects a field amplitude which exceeds the predetermined threshold level and the polarity of the field detected by each of the plurality of electrostatic field sensors is not the same, the switch being activated by the logic circuit only when both these conditions are met.

Claim 19. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, wherein the predetermined threshold level is approximately 1000 volts per meter.

Claim 20. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, wherein the means for directing the conducting fluid across the outer surface of the radome comprises grooves on the surface of the radome.

Claim 21. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, further comprising means for deactivating the conductive channel when the surround atmospheric conditions are no longer indicative of a high probability lightning strike.

Claim 22. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 21, wherein the means for deactivating the conductive channel comprises:

a source of clean carrier liquid; and

means for flushing the clean carrier liquid through the delivery system and over the conductive channel, thereby removing the conductive channel.

Claim 23. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, wherein the delivery system comprises:

at least two dielectric capillary tubes which vent close to the tip of the radome; and

a pump associated with a reservoir of the conducting fluid.

Claim 24. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, wherein the delivery system comprises a pneumatic or hydraulic system in which all control lines are dielectric and the pneumatic or hydraulic fluid used is not electrically conducting.

Claim 25. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 17, wherein:

the delivery means comprises an electric pump and a valve powered by a battery; and

the control means comprises a signalling circuit of optical fibres.

Claim 26. (Previously Presented) A lightning protection apparatus for a radome as claimed in Claim 23, wherein the pump has a forward action for delivering the conductive fluid to the surface of the radome and a reverse action for withdrawing it from the surface of the radome.

Claim 27. (Previously Presented) A method for conducting lightning across a surface of a radome comprising:

providing a source of electrically conducting fluid;

delivering the conducting fluid to the surface of the radome in response to detection of a change in surrounding atmospheric conditions indicative of a high probability lightning strike; and

directing the conducting fluid across an outer surface of the radome, thereby providing a conductive channel having a current conducting capacity sufficient for passage of electrical current resulting from a lightning strike and for dissipating said current through an object to which the radome is attached.

Claim 28. (Previously Presented) A method for conducting lightning across the surface of a non-conducting article comprising:

providing a source of electrically conducting fluid;

delivering the conducting fluid to an outer surface of the article prior to a lightning strike; and

directing the conducting fluid across the outer surface of the article, thereby providing a conductive channel having a current conducting capacity sufficient for passage of electrical current resulting from a lightning strike and for dissipating said current through a conductive medium to which the article is electrically coupled.

Claim 29. (Currently Amended) Radome apparatus for an aircraft, comprising:

a radome ~~[[mode]]~~ made of a nonconducting material, for mounting on an aircraft body; and

first means for providing a conducting path having a current carrying capacity sufficient for conducting electricity from a lightning strike that impinges on said radome, to said aircraft body; said first means comprising,

a source of electrically conducting fluid;

a delivery means for delivering the conducting fluid to a surface of a radome on which the protection apparatus is installed, prior to the lightning strike;

a control means for controlling the delivery means, said control means having

at least one electrostatic field sensor for detecting a change in surrounding atmospheric conditions indicative of a high probability of a lightning strike; and

means for initiating delivery of the conducting fluid on detection of such a change in atmospheric conditions, comprising a

threshold detector for detecting when an electrostatic field amplitude detected by the at least one electrostatic field sensor exceeds a predetermined threshold level, and a switch for activating the delivery means when the predetermined threshold level is exceeded; and

means for directing the conducting fluid across a surface of the radome toward said aircraft body, thereby providing a flow of said conducting fluid which forms said conducting path.